What is claimed is:

1. A method for increasing apoptosis in tumor cells comprising contacting the tumor cells with:
a) an effective amount of at least one antitumor chemotherapeutic agent and
b) an effective amount of a ceramide, sequentially or concomitantly, wherein the apoptosis induced by the combination of the antitumor chemotherapeutic agent and the ceramide is greater than the apoptosis induced by contact of the tumor cells with either the antitumor chemotherapeutic agent alone or the ceramide alone, thereby increasing apoptosis in tumor cells.

2. A method of decreasing a size of a tumor comprising contacting the tumor with:
a) an effective amount of at least one antitumor chemotherapeutic agent and
b) an effective amount of a ceramide, sequentially or concomitantly, wherein the induced decrease in size of the tumor by the combination of the antitumor chemotherapeutic agent and the ceramide is greater than the decrease in size of a tumor after contacting the tumor with either the antitumor chemotherapeutic agent alone or the ceramide alone, thereby decreasing the size of the tumor.

3. The method according to either claim 1 or 2, wherein the tumor cells are or the tumor is composed of cancer cells selected from the group consisting of leukemic cells, prostate cancer cells, pancreatic cancer cells and squamous cell carcinoma cells, breast carcinoma cells, melanoma cells, basal cell carcinoma cells, neuroblastoma cells, glioblastoma multiforme cells, myeloid leukemic cells, colon carcinoma cells, endometrial

carcinoma cells, lung carcinoma cells, ovarian carcinoma cells, cervical carcinoma cells, osteosarcoma cells and lymphoma cells.

4. A method according to either claim 1 or 2, wherein the tumor cells or the tumor are contacted first with at least one antitumor chemotherapeutic agent and subsequently contacted with the ceramide.

5. A method according to either claim 1 or 2 wherein the tumor cells or the tumor are present in a subject.

6. The method according to either claim 1 or 2, wherein the ceramide is selected from a C2-ceramide, C6-ceramide, C8-ceramide and a higher order ceramide.

7. The method according to either claim 1 or 2, wherein the antitumor chemotherapeutic agent is selected from the group consisting of paclitaxel, doxorubicin, cis-platin, cyclophosphamide, etoposide, vinorelbine, vinblastin, tamoxifen, colchinin, and 2-methoxyestradiol.

8. The method according to either claim 1 or 2, wherein the contacting with the antitumor chemotherapeutic agent is effected by cremophore delivery or liposome-mediated delivery and the contacting with the ceramide is effected by cremophore delivery, alcohol-mediated delivery or liposome-mediated delivery.

9. The method according to either claim 1 or 2, wherein the contacting with the antitumor chemotherapeutic agent and with the ceramide is effected by an administration route selected from the group consisting of intravenous,

intraperitoneal, intrathecal, intralymphatical, intramuscular, intralesional, parenteral, epidural, or subcutaneous administration; by infusion, by aerosol delivery; or by topical, oral, nasal, anal, ocular or otic delivery.

10. A pharmaceutical composition comprising at least one antitumor chemotherapeutic agent in an amount effective to induce apoptosis of tumor cells and a ceramide in an amount effective to induce apoptosis of tumor cells and a pharmaceutically acceptable carrier.

11. A method for treating cancer in a subject comprising administering to the subject an effective amount of at least one antitumor chemotherapeutic agent and an effective amount of at least one ceramide, sequentially or concomitantly.

12. The method according to claim 11, wherein at least one antitumor chemotherapeutic agent and subsequently at least one ceramide is administered to the subject.

13. The method according to claim 11, wherein at least one ceramide and subsequently at least one antitumor chemotherapeutic agent is administered to the subject.

14. A method according to claim 11, wherein the antitumor chemotherapeutic agent is paclitaxel and the ceramide is C6-ceramide.

15. A method according to claim 11, wherein the ceramide is a C2-ceramide, C6-ceramide, C8-ceramide or a higher order ceramide.